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generally in both directions (up and down), a varying number of straight tubes, parallel to the axis of the plant (see figs. 1, 2 and 3). They average five or six millimetres in length and commonly terminate blindly, a mature beetle being usually found in the end ot each. Sometimes, but rarely, one or more of these vertical excavations is found to extend farther and, bending at a right angle, to take a turn around the circumference of the bush, thus constituting a second horizontal circular canal from which, as from the primary one, a varying number of short vertical tubes branch off. And in very exceptional cases these excavations extend still deeper, and there may be three, or even four, more or less complete circular canals. Such an unusual state of things exists in the specimen from which figure 3 is taken.

It will be seen that with few exceptions, the most important of which is shown in figure 4, all the excavations (including both the horizontal canals and their vertical offshoots) are made in the sapwood, immediately under the bark, and not in the hard and comparatively dry central portion. This is doubtless because the outer layers of the wood are softer and more juicy and therefore more easily cut, besides containing more nutriment and being, doubtless, better relished, than the dryer interior.

This beetle does not bore, like some insects, but devours bodily all the wood that is removed in making its burrows. The depth of each vertical tube may be taken as an index to the length of time the animal has been at work; and the number of these tubes generally tells how many inhabit each bush, for as a general rule each individual makes but one hole, and is commonly found at the bottom of it. All of the excavations are black inside.

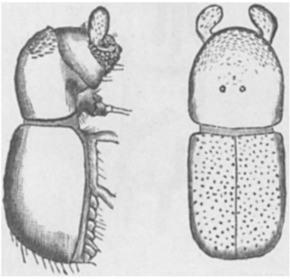


FIG. 5.–Corthylus punctatissimus.

The beetle is sub-cylindric in outline and very small, measuring but 3.5 mm. in length. Its color is a dark chestnut-brown, some specimens being almost black. Its head is bent down under the thorax and cannot be seen from above (see fig. 5.)

Should this species become abundant and widely dispersed, it could but exercise a disastrous influence upon the maple forests of the future.—*C. Hart Merriam, M. D.*

ZOÖLOGY.

ON THE GREEN COLOR OF THE OYSTER.—In *Forest and Stream* in the issues of 25th May and 1st June last, an article by me which had previously been read before the American Fish Cultural Association, gave in the main the conclusions which I had arrived at in regard to this singular phenomenon. It is now well ascertained that *Ostrea virginiana* is affected in precisely the same way as *O. edulis* and *O. angulata* of the Tagus, which I have been able to learn from fresh material from Liverpool, obtained for me through the efforts of Professor Baird. Additional investigations recently made have served to convince me that the coloration is *unquestionably* due to a tinction or staining of the blood cells of the animal, and that the coloring matter is either derived from without or else may be a hepatic coloring principle, which through some derangement of the normal metabolic processes of the animal, has been dissolved in the lympho-hæmal fluids and so been taken up by the blood cells or hæmatoblasts and given them their peculiar color. The blood cell of the oyster measures about $\frac{1}{3000}$th of an inch in diameter, but varies somewhat in size. It is amœbal in behavior to a surprising degree, throwing out pseudopodal prolongations which may even be branched. In a temperature abnormal to them at this season, I have had them live in a compressorium, bathed in their own serum, for four hours, during which time they exhibited the most surprising activity of movement, even becoming confluent with one another. The corpuscles which have been most deeply tinged appear to have lost their amœbal disposition, and when large quantities of green corpuscles have been freed from the meshes of the muscular trabeculæ of the ventricle, they exhibit a rounded form with no disposition to throw out pseudopods or to migrate. To this may be due the fact that they accumulate in the trabecular meshes on the inner surface of the heart and in cyst-like spaces in the mantle. They differ in no respect from a quiescent, normal, colorless blood cell of the oyster, except in color. The hypothesis of tinction which I have proposed, in no way disposes me to assign a less value to the influence of the food as the primary initiatory agency in effecting a staining of the internal ends of the cells which form the walls of the hepatic follicles. In fact, in certain lots of oysters most affected, the hepatic follicles are most deeply stained internally. I have failed to prove by spectroscopic research that this substance is chlorophyll, and my belief that it is chlorophyll at all, has recently been weakened by the fact that specimens which had the liver dyed deep green and were affected in other parts have shown no disposition to part with their coloring matter although immersed in strong alcohol for months, during which time it has been changed two or three times. Chlorophyll, so eminently soluble in alcohol during all this time, would also not be likely to retain its color, as its bright green tint slowly fades when in the form of an alcoholic solution. Wide differences are observable in the color of the liver of oysters; in some the follicles are reddish-brown, in others dark-brown, and in "greened" oysters they may be of a brownish-green. In sections these differences are very conspicuous.

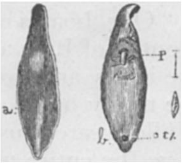
The hypothesis of vegetable parasites, and a most airy one at that, seems to me in this case to have no foundation whatever.

The study of *Stentor polymorphus* and *Vorticella chlorostigma* have also served to convince me that so far as any evidence of green algoid cellular proliferation or multiplication within certain low forms has been more a matter of imagination than of observation. The detection of vegetal parasites of a wholly different character in a fresh-water mussel, by Leidy, is a case of an entirely different nature. They would be recognized as a thing entirely different from the green cells formed in the oyster, as well as equally distinct from anything which has been supposed to be ento-parasitic in green protozoa, judging from sketches which Professor Leidy has been kind enough to show me. Moreover, the color of the tinged and abnormal blood-cell of the oyster is very faintly green, vastly more faint in color than any normal chlorophyll grains as usually met with. I do not mean to imply that vegetable and animal coexistence—*symbiosis*, may not be a fact, but simply to point out that there are significant exceptions.

As if to aid in proving still more conclusively the views herein propounded to account for the green color of the oyster, I recently happened to open some native oysters for purposes of investigation, when I was rewarded by finding the pallial vessels mapped out as if they had had a pale greenish injecting fluid thrown into them. Here was occular proof to supplement that gained in a study of the tissues, vascular canals and heart of the animal by means of sections in both the living and dead condition. The most conclusive evidence as to the relations of the green blood-cells to the heart may be obtained from transverse sections of hardened affected specimens of the latter organ, the trabecular meshes of the walls of which have served to retain the abnormal cells in large masses or even as a thick adherent layer covering the whole of the internal parietes of the ventricles, and even extending down behind the auriculo-ventricular valves so as to impede their action. Contrasting this state of affairs with what is seen in a normal heart in which no such inter-trabecular deposits are discoverable, we find that the whole organ differs, too, from one which is affected, the former being translucent-whitish in life, the other of an opaque pea-green hue on account of the thick deposit of "tinged" corpuscles.—*J. A. Ryder.*

NEW AND RARE FISHES IN THE MEDITERRANEAN.—Professor Hy. H. Giglioli contributes to *Nature* a note upon some fish-forms not hitherto noticed in the Mediterranean. One or two of these are new to science, while others were previously known only from the North Atlantic. Professor Giglioli intimates his belief that most of the species found at Madeira will eventually be found in the Mediterranean. The regions in which research was carried on were the coasts of Sicily, the Adriatic from Ancona to Lecce, and the Ionian Sea from Taranto to Reggio, and over two thousand specimens were taken. *Molva vulgaris* was taken both at Catania and Palermo; *Scorpæna astulata* Lowe, and *Umbrina* *rorchus* Val., at Messina. Also, in November last, *Malacocephalus lævis*, and a species that is probably new, and may be allied to *Malacosteus.* This fish is deep black, with small eyes, and skin free from scales, and is evidently abyssal. A specimen of *Notacanthus*, perhaps the rarest of fishes, was also found. It is evidently nearly allied to *N. rissoanus* De Fillippi, yet differs from the description of that species. The harbor of Messina is a most favorable spot for obtaining deep-sea fishes, in stormy weather such forms as Chauliodus, Stomias, Argyropelecus, Microstoma, Coecia, Maurolicus, and ten or twelve kinds of Scopelus are thrown up in hundreds.

A Cave Inhabiting Flat-Worm.—In May, 1874, while investigating the cave-life of the Carter caves in Eastern Kentucky under the auspices of the Geological Survey of Kentucky, Professor N. S. Shaler, director, I discovered in a brook in X cave, a Planarian which belongs to the Rhabdocœla, while the Planarian found by us in the brook in Mammoth cave is a Turbellarian. This is figured in our "Zoölogy" p. 141 under the name of *Dendrocœlum percæcum.* The Rhabdocœlous worm found in the Carter caves belongs near Vortex, and it may provisionally be called *Vortex cavicolens.* The body is flat, elongated, narrow, lanceolate oval, contracting in width much more than is usual in Vortex. The pharynx is situated much farther back from the anterior end of the body than usual in Vortex, being placed a little in front of the middle of the body; it is moderately long, being oval in outline. The body behind suddenly contracts just before the somewhat pointed end. The genital outlet is about one-half as wide as the pharynx and orbicular in outline. Though described from two alchoholic specimens I can discover no eyes, nor do I remember seeing any when it was living, it was, when alive, white and apparently eyeless. Length 4 ^{mm}; breadth 1.5 ^{mm}. Found in X cave, one of the Carter caves, Eastern Kentucky.



Planarian Worm, Carter caves. *a*, dorsal; *b*, ventral; 6 × magnified; *c*, nat. size, ventral; *p*, proboscis.

This worm may not prove to be a genuine Vortex, the species of which are broad and blunt in front, with the pharynx much nearer the front end than in the present species, which is therefore only provisionally placed in the genus Vortex. In *Vortex cæcus* Œrsted the eyes, as the specific name implies, are wanting, but most of the species have eyes. As our species occurred in a brook in a dark cave, it would naturally, as in the case of the Mammoth cave eyeless white Planarian, be eyeless, and as a consequence of losing its eyes become white. Schultze in his Naturgeschichte der Turbellarien states that *Vortex viridis* in winter was generally without chlorophyll bodies and wholly white, but that in April the white individuals are rare. He then adds. "Kept for a considerable time in darkness the green animals become through bleaching and the disappearance of the chlorophyll almost colorless."—*A. S. Packard, Jr.*

THE METAMORPHOSIS OF PENÆUS.—Scarcely another fact in morphological science, standing alone, exceeds in interest, says Professor W. K. Brooks, in the Johns Hopkins University circulars for November, 1882, the discovery that Penæus, a Decapod, passes through a Nauplius stage. Those familiar with the literature of the subject will recollect that Fritz Müller kept under observation until it changed into a Protozoëa, a Nauplius which he captured at the surface of the ocean. He also secured in the ocean, a very complete series of larvæ, through which he identified the Protozoëa with a young Macrouran with the characteristics of the genus Penæus. During the past summer, at the marine labratory of Johns Hopkins University, established at Beaufort, N. C., Professor Brooks has obtained the youngest Protozoëa stage of Penæus, the stage which Müller actually reared from the Nauplius." I have had the good fortune to rear this larva in the house, and to witness in isolated captive specimens every one of the five molts between the first Protozoëa and the young Penæus.

"Our boat is too small for work outside during the windy months of June and July, and as the ripe females do not come into the inlets and sounds, I have not been able to obtain the eggs or the newly hatched young; but this is the less important, as Fritz Müller reared his first Protozoëa from a Nauplius, so that we now have the entire metamophosis from actual observation."

[In 1871 we visited Charleston, S. C., partly for the purpose of working upon the development of Penæus. Unfortunately our visit, which was early in April, was too soon to enable us to find the prawn with eggs. None of those brought to the Charleston markets in April were spawning. We were informed that the prawn does not have eggs until May, probably the latter part of the month. The negroes catch them with sweep-nets.—*A. S. Packard, Jr.*]

THE GROWTH OF THE MOLLUSCAN SHELL.—The structure of the molluscan shell has been studied by means of sections of adult shells by Carpenter and others, and they have found that it presents an outer membranous horny epidermis and an internal stony portion. Such a method could not give any idea of the actual process of shell formation and a knowledge of this could be gained only by study of the first steps. To this end, edges of the shell were snipped away and a thin glass circle thrust between the animal and its shell, care being taken to prevent injury to the mantle. After the lapse of twenty-four hours the shell was opened and the glass circle carefully examined, others were allowed to remain two days, or three days, or for periods of weeks.

In twenty-four hours it was found that a film had been left upon the circle; in forty-eight hours, this film was plainly stony. The earliest traces of this film when treated with coloring reageants, stain, but, when treated with acids, show no traces of lime, nor any evidences of structure; it is simply a structureless membrane. Later films, when treated with acetic acid, present the appearance of a tesselated pavement, and when examined with the polariscope and not treated with acetic acid show beautifully the presence of lime.

It would thus appear that the epithelium of the mantle pours out a secretion of horny matter which forms the epidermis; that this secretion holds lime in solution; and that from this the stony internal portion of the shell is formed. Experiments were successfully made upon the shells of the oyster and pinna and several other lamellibranchs, and some gasteropods were tried, but thus far in vain.—*H. L. Osborne in Johns Hopkins University Circular, No. 19, Nov., 1882.*

THE FRESHLY HATCHED YOUNG OF THE HORSE-SHOE CRAB.—On the second of last August, while Professor Dwight, of Vassar College, and myself, were collecting shells at Martha's Vineyard, he had the good fortune to discover a newly-hatched colony of Limuli. They were under the mat of seaweed lining the shore of one of the inlets. There must have been nearly a pint of them, and although out of water at the time were moving in a lively manner. The individuals were about four millimetres in length. —*T. J. Battey.*

SCOLOPENDRELLA IN ILLINOIS.—While searching the earth about the roots of corn to-day, for eggs of *Diabrotica longicornis*, I found a single Scolopendrella, which, on examination, proved to be so closely like the figures of *S. immaculata*, published in the NATURALIST for September, 1881, that I have no doubt that it belongs to that species, especially as it lacks the lateral bristles to the segments, and the angular outline of the head of *S. gratiæ* Ryder.

Since this specimen occurred in a cultivated field, careful search would probably discover the species almost everywhere in proper situations.—*S. A. Forbes.*

NOTES ON FISHES.—The fish described by Messrs. Goode and Bean as *Lopholatilus chamæleonticeps*, and also punningly called "tile-fish" by the same naturalists, has made itself celebrated by dying in great numbers in the spring of this year.

A great number of dead fish, mostly of a kind unknown to the fishermen, were strewn upon the surface between the Grand Banks and Barnegat, New Jersey, and on examination, were proved to be this fish. The dead fish formed a belt thirty to fifty miles wide, in which area they were strewn so thickly that it was estimated that fully fifty lay in the area of a bark's cabin.

When first reported they were in good condition, and proved excellent food. The cause of the mortality is unknown, but Professor Baird is of opinion that concussion, caused by terrific storms, which raged off the banks, might probably account for it. The tile-fish was first discovered in 1879, was afterwards proved by the United States Fish Commission to occur in incredible quantities along the western edge of the Gulf stream at a depth of from seventy-five to one hundred and fifty fathoms, and was hoped to be a valuable addition to our food-fishes, as the quality of the flesh is excellent. It is to be feared that the mortality will for a long time prove a check upon the supply, as diligent search this summer failed to find the tile-fish in their accustomed haunts. Instead of it a few beautiful red fish, with very large and broad pectorals, afterwards found to be *Scorpæna dactylopterus*, were met with. The tile-fish belongs to the Latilidæ, but differs from Latilus in the presence of a large adipose appendage upon the nape, a little in advance of the dorsal fin, as well as in having a fleshy prolongation of the labial folds beyond the angle of the mouth. The upper parts of the body are dotted with yellow spots. It attains a weight of fifty pounds.

A singular flat-headed goby *(Dormitator maculatus)*, known to be common in the tropics, has, during the last five years become abundant in some bayous of the Mississippi, where they were previously unknown.

In October and November, 1880, at Bucksport, Orland, Maine, several hundred salmon were marked by a numbered platinum tag attached to the rear of the dorsal fin. Previous to June 26, 1882, five tagged salmon were recaptured, and several others showed marks of having been tagged. As more were taken in 1881, this experiment goes to prove that salmon which escape the dangers of the ascent and descent, visit the river again for spawning purposes two years after.—*Forest and Stream.*

THE WORK OF THE "TRAVAILLEUR."—The French have not led in the work of deep-sea exploration, but they are following in time to gather honors. The Mediterranean and the Bay of Biscay offered an ample field, untrodden by the tracks of the English or American exploring ships, and therefore these were chosen as the dredging-ground of the despatch-boat *Travailleur*, which the French government lent for the service of science. In July, 1880, the *Travailleur* did good work in the Bay of Biscay, while in the same month of 1881 she dredged in the Mediterranean around Corsica, across to Oran, and thence to Tangiers, whence she proceeded over the deep waters off the west coasts of Portugal and Spain into the Bay of Biscay. The number of new species encountered is probably less than have been obtained by other expeditions, but the short cruise, extending only from July 3d to August 20, has settled definitely a very important problem in geographical distribution, viz., the relations of the Mediterranean fauna to that of the Atlantic.

The *Travailleur* was provided with sounding apparatus similar to that employed in the English expeditions; with dredges of the usual pattern, to which the commander, M. Richards, added two large nets whose mouths were kept open by iron frames; with Miller-Casella thermometers; and with "bouteilles à eau," ingenious bottles invented by M. Richards for taking samples of water at any determined depth.

The scientific work was thus apportioned: A. Milne Edwards, crustacea; M. de Follin, editor of "Les Fonds du Mer," rhizopoda; Professor Le Vaillant, fishes; Professor E. Perrier, echinoderms; Professor Marion cœlenterates and worms; and M. Fischer, mollusks and worms.

The depths of the Mediterranean, often 2600 metres below the surface, are covered entirely with a homogeneous, sticky mud, without so much as a pebble, but in certain places this mud is strewn over with an enormous quantity of the delicate shells of such pelagic mollusks as Hyalea, Carinaria, etc. This homogeneous mud, the result of the immense amount of sediment continually carried into this inland sea by the numerous rivers that flow into it, does not appear to offer favorable conditions for the development of animal life, since what most struck the attention of all the naturalists was the rarity of the organisms inhabiting the depths, when compared with the astonishing riches of the surrounding coasts. Throughout these depths, not only is there a monotony of muddy surface, but no currents change and agitate the water, and the temperature, beyond a depth of 200 metres, appears to be always 13° centigrade. The discovery in the Mediterranean of many forms believed to be peculiar to the Atlantic, and in the latter of those believed to be confined to the Mediterranean, has proved that the fauna of that sea had its origin in the ocean by way of the Straits of Gibraltar.

In this connection we cannot do better than translate the words of A. Milne Edwards, at the conclusion of his address to the Academy of Science, Paris:

"It results from our researches, that the Mediterranean ought not to be considered a distinct zoölogical province; the more its species are studied, the more it becomes evident that those forms believed to be limited to it can be found elsewhere.

"The observations made by the *Travailleur* lend a new force to this opinion. We believe that the Mediterranean is peopled by animals from the ocean. These finding in this recently opened basin conditions favorable to their existence, have established themselves there definitely; in many cases they have reproduced and developed themselves more actively than in their first habitat, and, especially near the coasts, the fauna shows a richness that the other European coasts rarely show. Some animals, placed in new biological conditions, are slightly modified in form or in other exterior characters, which explains the slight differences which may be observed between certain oceanic forms and the corresponding

Mediterranean form. The principal cause of the belief in the primordial distinctness of the two faunæ has been the comparison of the productions of the Mediterranean with those of the North sea, British channel or Brittany; instead of, as should have been the case, with those of Portugal, Southern Spain, Morocco and Senegal. The animals of these regions are those that first migrated to the Mediterranean, and as we become acquainted with the fauna of these regions, we shall see the differences zoölogists have noticed between them gradually disappear."

When once fairly outside of the Straits of Gibraltar, the monotony of the sea-bottom disappeared, sandy, pebbly and rocky areas were met with; the nets, which in the Mediterranean prevented the dredge from filling instantly with mud at the spot where it struck the bottom, became useless; and the temperature of the depths, owing to sub-marine currents, lost the uniformity so characteristic of those of the Mediterranean.

As a consequence of these varied conditions the forms of animal life increased in individuals and numbers, but among them, along the Portuguese coast, were found species heretofore considered exclusively Mediterranean.

At the entrance of the Bay of Biscay from the south, a remarkable inequality in the ocean bed was met with. A few miles beyond a sounding of 560 metres the astonishing depth of 4557 metres was found, and only thirteen miles further on bottom was reached at 400 metres—an irregularity scarcely to be paralleled by the highest chain of mountains.

The greatest depth sounded in the Bay of Biscay was 5100 metres, or about three and a quarter miles, and it was resolved to attempt to use the dredge at this depth. The operation lasted thirteen hours, and 8000 metres of cord were paid out, but the results, though only an annelid, amphipod and two ostracodes, proved the existence of tolerably high organisms at this great depth.

ZOOLOGICAL NOTES.—The eyes of the Proteus, according to M. Desfosses, are destitute of a crystalline lens, although they are provided with a retina. The blind subterranean fishes may need further study on this point.——In the last issue of studies from the Biological Laboratory of the Johns Hopkins College, E. B. Wilson describes a Nemertine larva of the Pilidium. It is helmet-shaped, with the convex side more elevated than usual, and crowned by a small flagellum. The anterior margin of the bell is produced into four short arms, behind which is a deep sinus, followed by two arms on each side, the anterior largest of all. The bell is transparent, its walls and lobes very contractile, and its outer and inner surfaces covered with cilia, which are longest on the margins of the lateral lobes. The young Nemertines are developed in a folded position, within the lower and posterior part of the larval envelope, and are distinctly segmented posteriorly.——M. F. Lataste (*Bull. Soc. Zool. de France*, Nov., 1881), describes a new species of Ctenodactylus, *C. mzabi*, a rodent of the Algerian Sahara. The remaining species are *C. massoni*, from S. Africa, and *C. gundi*, also from the Sahara. The toes of *C. gundi* are furnished on their inner face with horny tubercles, and probably similar tubercles were mistaken by Gray, in the Cape species for the "pectinated osseous appendages," that he insists on in characterizing the genus.——In the same volume, M. A. Certes narrates his experience with infusorian, and other germs. Water from Chott Timrit (Algiers), was evaporated in the sun in March, 1878. In April, 1881, the sediment was placed in boiled and filtered water, protected carefully from outside germs. Next day infusorians appeared, and in the beginning of June the nauplii of *Artemia salina* were visible, and rapidly grew.——In the Bulletin of the same Society for 1882, Dr. Dybowski brings together some interesting particulars respecting the family Mormonidæ (puffins). Eight species are known, one, *Fratercula arctica*, with two distinct races. The last species is peculiar to the N. Atlantic, while the other seven inhabit the N. Pacific, Kamtschatka, and the neighboring isles. Most nest in the crevices of rocks, but *Lunda cirrhata* prefer the plateaux on the margins of rocky islets. They leave Kamtschatka in October, and return at the end of May; a single egg is laid, and both sexes sit upon it.——In the *Annals and Magazine of Natural History*, the Rev. T. Hincks gives proofs of the homology of the *vibraculum* of the polyzoa, with the avicularium. The vibratile portion of the latter is an extension of the mandible, while the rest of the beak supplies a support and terminal notch in which the seta plays. Specimens of *Micropcrella ciliata* from various parts of the world, exhibit stages from the beak to the long seta, with its support, while in others it is modified into a flapper. In view of this instability of avicularian structure, the writer is disposed to differ from those who assign it a high value in classification.——The same writer, in the ninth of a series of contributions towards a general history of the Polyzoa, describes five new species of that group.——Mr. S. O. Ridley describes three new species of Gorgoniidæ, two from the Mauritius, and one from Burmah.——H. J. Carter describes a Cellepora of asteroid form, clustered around an empty shell, and a Palythoa of branched form, also on a shell, both from Senegambia.——The same naturalist describes twenty species of sponges, from the West Indies, and Acapulco, with valuable notices on other species. Among other facts, the author states that *Chondrilla nucula*, though nearly as hard as wood when dry, imbibes moisture and swells like the common sponge, becoming tough and elastic like India-rubber; and that *Spongia officinalis* of the West is identical with that of the Mediterranean, the Cape, and the world generally, coarser and finer forms occuring together. ——Prof. W. I. Sollas gives an exhaustive description of three

Tetractinellid sponges of Norway, with numerous figures of structure.——In the Morphologisches Yahrbuch bd. VIII, heft I), E. Berger publishes an elaborate essay on the anatomy of the eye of fishes, illustrated by excellent histological sketches.——The Annals and Mag. Nat. Hist. contains a preliminary notice by Professor McIntosh of a remarkable new type of aberrant Polyzoa allied to Rhabdopleura. It was dredged in the Straits of Magellan, and would readily be mistaken for a seaweed, since it is composed of a much branched fucoid tissue, tinged of a pale brownish hue and semitranslucent. This algoid mass or polyzoarium contains the minute animals which secrete this "house."——The Annals also has the conclusion of Barrois' general theory of the embryology of the Bryozoa. His conclusions are too long to reproduce here.——The Archives de Zoölogie Experimentale, No. 2, concludes Apostolide's elaborate anatomy and development of the Ophiurans, and publishes, with elaborate plates, Laffuie's work on the organization and development of Oncidium, a mollusk with dorsal eyes. The third number contains Vitzou's researches on the structure and formation of the integument of the Decapod Crustacea.——A fresh-water shrimp has been collected in ponds and ditches in Japan, by Dr. C. O. Whitman; it has been determined by E. J. Miers to be probably *Atyephyra compressa* De Hann sp. It is allied to Troglocaris, a shrimp which inhabits caves in Carinthia.——The Transactions of the Ottawa Fields Naturalists' Club contain a few original papers of zoölogical and palæontological interest, among them notes on the Ottawa Unionidæ, by F. R. Latchford, which contains a description by A. F. Gray, of a new species, *Unio borealis;* descriptions of new species of bird mites, by J. B. Tyrrell, as well as a list of birds found near Ottawa.——In his seventh notice of the remarkable marine fauna occupying the outer banks of the southern coast of New England, Professor Verrill, in the *American Journal of Science* for November, gives evidence of a great destruction of marine life last winter, when the tile-fish and a wholesale destruction of invertebrate life took place. This was the result, probably, of a very severe storm, which occurred in this region, "which by agitating the bottom-water, forced outward the very cold water that, even in summer, occupies the great area of shallower sea, in less than sixty fathoms along the coast, and thus caused a sudden lowering of the temperature along this *warm zone*, where the tile-fish and the crustacea referred to were formerly found. As the warm belt is here narrow even in summer, and is not only bordered on its inner edge, but is also underlaid by much colder water, it is evident that even a moderate agitation and mixing up of the warm and cold water might, in winter, reduce the temperature so much as to practically obliterate the warm belt, at the bottom. But a severe storm, such as the one referred to, might even cause such a variation in the position and flow of the tidal and other currents as to cause a direct flow of the cold inshore waters to temporarily occupy this area, pushing outward the Gulf stream water."——M. A. Milne Edwards, in the course of a summary of the work done by the *Travailleur* in the Mediterranean, mentions the capture of some Gobies, *Phycis mediterraneæ*, and *Plagusia lactea*, at depths not exceeding 450 meters, and of *Argyropelecus hemigymnus* at 1068 metres; many crustacea which were known only from the Atlantic, inhabit the abysses of the Mediterranean, and a new species of *Galathodes* (*G. marionis*) blind (like its congeners of the West Indian seas and the Bay of Biscay), and having eyes devoid of pigment, was found. Among the Bryozoa many remarkable species establish a passage between those of the Atlantic and the Mediterranean, while some were previously represented only by forms regarded as peculiar to the Cretaceous deposits. The three rare species of sharks taken at Cape Espichel (Portugal) in 1200 metres *(Centrophorus squamosus, C. crepidalbus*, and *Centroscymnus cœlolepis)*, seem never to quit the abysses of the ocean.——Mr. B. Wright describes three Stylasterial and two Madreporian corals from the South seas.——Dr. A. Gruber describes two forms of Amœba in which the body is surrounded by a fine layer of clear protoplasm, which must be broken through before a pseudopodium can be protruded.——Dr. A. Günther, in a ninth contribution to the knowledge of the fauna of Madagascar, describes five new reptiles.——Dr. L. Orley presents a report on the Hematodes in the British Museum. He divides the order into: 1. Hematentozoa; thread-worms completing their early stage free, spending adult life as parasites, and laying immense numbers of ova; 2. Rhabditiformæ; small, chiefly microscopic, free thread-worms, becoming sexually mature in decomposing organic matter, living in colonies, and developing rapidly with either slight or sexually dimorphic metamorphosis. Exceptionally these may be parasitic; 3. Anguillulidæ. Microscopic thread-worms leading a free existence in mould or water, without complex metamorphosis, and producing large eggs.——Professor F. W. Hutton gives particulars of the structure and development of *Siphonaria australis*, states that it is a true pulmonate, and remarks that in their reproductive organs and dentition the pulmonates approach more nearly to the Opisthobranchs than to the Prosobranchs.——Mr. O. Thomas describes two new Muridæ (long-haired rats), of rather large size, from Tasmania. ——G. A. Boulenger gives an account of the reptiles and batrachia collected by Mr. Whymper in Ecuador. The list includes a Cinosternon, an Amphisbæna, a new Coronella, and two species of Bothrops; in all twenty-seven reptiles, with twelve batrachia, three of them new.——F. D'Arruda Furtado notices a case of complete abortion of the reproductive organs in ten specimens of Vitrina from St. Michael's, one of the Azores.